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FOREST PLANTING LEAFLET.

BOXELDER (Acer negundo).

FORM AND SIZE.

The boxelder is a small tree, often characterized by a crooked stem which divides at a short distance from the ground into several stout, widespreading branches, forming a large, round crown. In dense stands a single upright trunk is produced, although the clear length is usually short and perfectly straight stems are rare. The average height attained by boxelder is from 40 to 60 feet, with a diameter of from 1 to 2 feet.

RANGE.

The boxelder is among the most widely distributed of American trees. East of the Appalachian Range it is found in small numbers from Vermont and Ontario to Florida; it is more abundant from Manitoba and the Allegheny Mountains to the foothills of the Rockies, extending southward to western Texas and Arizona. In California it reappears as a distinct variety. The boxelder is most common in valleys and along bluffs overlooking water courses in the Mississippi Basin and makes the best development in the valley of the lower Ohio River. It seldom occurs as the ruling species, but usually as scattered individuals or in groups among other hardwoods. The trees with which it is most commonly associated are white elm, hackberry, silver maple, black walnut, green ash, and Kentucky coffeetree.

The range of the boxelder has been considerably increased by planting and has been made to include most of the New England States, while in the West it has been successfully introduced into

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regions much drier than the river bottoms, which are its natural home. The best region for its economic planting comprises the greater part of the treeless West, from North Dakota to Texas.

HABITS AND GROWTH.

Boxelder tolerates a great variety of climate and soil conditions. It will grow on rocky slopes and on the semiarid prairies; it thrives on calcareous soils, sandy loam, or even on sand, when ground water is within 20 feet of the surface; yet the best development is reached on the deep, moist soil of valleys and the borders of lakes and swamps. Because of the small size of the boxelder and its ability to endure shade, it usually occupies the lower story of the forest in which it grows, and in the Middle West often comes up in dense thickets as an understory in cottonwood plantations. The tree does not clear itself well and the dead branches are very persistent. It often sends up clusters of sprouts from the root collar.

The boxelder is a short-lived tree of moderately rapid growth. The annual increase is usually not more than 1 to 1½ feet in height and one-fourth inch in diameter.

In the Northern States considerable damage is often done to the boxelder by drifting snow, which collects on the thick branches and breaks them off. In some localities young shoots and the pith of branches are attacked by borers, and the foliage is much affected by leaf-feeding insects. With the exception of the silver maple, the boxelder is the species most extensively damaged by the cottony maple scale.

ECONOMIC USES.

The wood is soft, weak, light, close-grained, creamy white, with an indistinct, thick sapwood. Although it has low fuel value, its principal use is as firewood. It is utilized to some extent for interior finishing, woodenware, cheap furniture, and paper pulp. The wood is more durable in contact with the soil than cottonwood or willow, but boxelder does not grow straight enough to make good posts and it yields less per acre than either of the other species.

As a street and lawn tree the boxelder is of some value because of its hardiness, but throughout a great portion of its range it becomes at times so badly infested with a scale that it is very objectionable. Where uniformity is desired the use of this species is inadvisable, since trees of the same age are apt to vary much in form and rate of growth.

Boxelder has been planted extensively in the West and is useful for wind and snow breaks, for underplanting in open stands, and as a filler with a more valuable species, such as black walnut. However, the tree's need of moisture and the small quantity and inferior quality of the material it produces make it unfit for general upland planting.

METHODS OF PROPAGATION.

The boxelder is hardy and easily propagated. In natural stands reproduction is fairly good in moist situations, and when a plantation is once established it can easily be so managed that it will perpetuate itself through natural seeding.

Plantations should be started with nursery stock. Seed is produced in large quantities nearly every year and ripens in early autumn. It may be gathered as soon as ripe and sown immediately in the nursery, or stratified in sand during the winter for spring sowing. Collecting in mild climates may even be delayed until winter, since the seeds hang on the trees until spring. Although produced in abundance and apparently fertile, the seeds have an average germination of only 40 to 60 per cent.

The seeds should be sown in the spring on carefully prepared ground in drills sufficiently far apart to allow cultivation. They should be dropped so thickly that they touch one another and should not be covered more than one-half inch.

One pound of boxelder seed contains about 15,000 seeds and will be sufficient to sow 400 linear feet of drills. This amount of seed should produce about 6,000 plants.

Under favorable conditions and with proper care the seedlings will grow to a height of 10 to 14 inches during the first season.

PLANTING.

The seedlings should be transferred to the permanent site in the spring when 1 year old. Since the boxelder is very tolerant of shade and has a tendency to form a spreading head the trees should be spaced 5 feet apart each way or 4 by 6 feet.

It is rarely desirable to plant the boxelder in pure stands, except for wind-breaks, shade, or ornamental purposes. In forest plantations the tree may be planted to good advantage in mixture with white elm, honey locust, black locust, green ash, black walnut, and European larch.

CULTIVATION AND CARE.

Plantations of the boxelder should be carefully protected from fire and stock, and should be cultivated for the first two or three years until the trees begin to shade the ground.

If damage by insects becomes noticeable, specimens should be sent to the Bureau of Entomology of the Department of Agriculture for identification and advice as to treatment.

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